Amendments to the Specification

The paragraphs starting at page 3, line 5 and ending at page 4, line 23 have been amended as follows.

Hence, temperature detection control is important in the inkjet printing apparatus, and various control methods have been proposed for acquisition of the environmental temperature and head temperature. Examples of these proposals are as follows.

More specifically, an example is control of correcting an environmental temperature detected in accordance with the time elapsed after power-on of a printing apparatus (see, e.g., Japanese Patent Publication Laid-Open No. 5-31916, and ~~USP~~ U.S. Patent No. 5,751,304). Another example is control in which means for measuring a time elapsed after previous printing and a temperature detection element for measuring the current temperature of a thermal head are adopted, and the temperatures of units except the thermal head are estimated using the current head temperature and the time elapsed after previous printing (see, e.g., Japanese Patent Publication Laid-Open No. 5-238045). Still another example is control in which printhead temperature detection means and a detection control step of detecting the printhead temperature after the end of printing every lapse of prospective time are provided, and the latest detected printhead temperature is regarded as an environmental temperature (see, e.g., Japanese Patent Publication Laid-Open No. 6-198886). Still another example is control in which a temperature detection circuit

for detecting a temperature on the control board of a printhead and measurement means for measuring times elapsed after power-on of a printing apparatus, soft power-on, and printing are adopted, and the temperature read timing and detection temperature correction value are changed on the basis of the combination of the measured times (see, e.g., Japanese Patent Publication Laid-Open No. 7-60996, and ~~USP~~ U.S. Patent No. 5,646,655).

Head temperature detection elements arranged on a printhead require detection temperature correction owing to manufacturing variations. As the correction method, there is proposed a control method in which head temperature detection means and environmental temperature detection means are adopted, and the offset value of a head detection temperature is set on the basis of the head temperature and environmental temperature upon powering on a printing apparatus or exchanging a printhead (see, e.g., Japanese Patent Publication Laid-Open No. 7-209031, and ~~USP~~ U.S. Patent No. 5,646,655).

The paragraph starting at page 5, line 17 and ending at page 6, line 5 has been amended as follows.

The printing apparatus exhibits large power consumption and a large heat generation amount in a printing operation in comparison with a non-printing state. To minimize the influence of heat generated in the printing operation, an environmental temperature detection element has conventionally been arranged at a portion almost free

from the influence of a temperature rise in the apparatus. However, as the printing apparatus is downsized, the environmental temperature detection element tends to be influenced by a temperature rise in the apparatus regardless of the position of the element in the apparatus. This indicates that an accurate environmental temperature can be no longer acquired by a conventional method. As a result, the temperature detection means of the printhead cannot perform accurate correction.

The paragraphs starting at page 6, line 12 and ending at page 7, line 11 have been amended as follows.

For example, a temperature detection method and a printing apparatus using the method according to the present invention ~~is~~ are capable of more accurately acquiring an environmental temperature and more accurately correcting temperature detection of a printhead.

According to one aspect of the present invention, preferably, a temperature detection method of a printing apparatus which prints by using a printhead, comprises: a storage step of storing, in a nonvolatile memory, a previous printing time when the printhead has performed a printing operation; a time acquisition step of acquiring a current time by using a timer which always performs a time counting operation by power supply from an auxiliary power supply capable of supplying power independently of a main power supply that supplies power for performing the printing operation by the printing apparatus;

a calculation step of calculating a time elapsed after the previous printing time on the basis of the current time and the previous printing time; a comparison step of comparing the elapsed time and a predetermined time; a measurement step of measuring a temperature by using a sensor arranged in at least ~~either~~ one of the printing apparatus and the printhead in accordance with the comparison result at the comparison step; and an update step of updating a temperature on the basis of the measured temperature.

The paragraphs starting at page 8, line 5 and ending at page 10, line 13 have been amended as follows.

According to another aspect of the present invention, preferably, a printing apparatus which prints by using a printhead, comprises: a nonvolatile memory which stores a previous printing time when the printhead has performed a printing operation; a timer which always performs a time counting operation by power supply from an auxiliary power supply capable of supplying power independently of a main power supply that supplies power for performing the printing operation by the printing apparatus; time acquisition means for acquiring a current time by using the timer; calculation means for calculating a time elapsed after the previous printing time on the basis of the current time acquired by the time acquisition means and the previous printing time stored in the nonvolatile memory; comparison means for comparing the elapsed time and a predetermined time; measurement means for measuring a temperature by using a sensor arranged in at least

~~either~~ one of the printing apparatus and the printhead in accordance with the comparison result by the comparison means; and update means for updating a temperature on the basis of the measured temperature.

According to still another aspect of the present invention, preferably, a temperature detection method of a printing apparatus which prints by using a printhead, comprises: a storage step of storing, in a nonvolatile memory, a previous printing time when the printhead has performed a printing operation; a time acquisition step of acquiring an absolute current time; a calculation step of calculating a time elapsed after the previous printing time on the basis of the absolute current time and the previous printing time; a comparison step of comparing the elapsed time and a predetermined time; a measurement step of measuring a temperature by using a sensor arranged in at least ~~either~~ one of the printing apparatus and the printhead in accordance with the comparison result at the comparison step; and an update step of updating a temperature on the basis of the measured temperature.

According to still another aspect of the present invention, preferably, a printing apparatus which prints by using a printhead, comprises: a nonvolatile memory which stores a previous printing time when the printhead has performed a printing operation; time acquisition means for acquiring an absolute current time; calculation means for calculating a time elapsed after the previous printing time on the basis of the absolute current time acquired by the time acquisition means and the previous printing time stored in the nonvolatile memory; comparison means for comparing the elapsed time and a

predetermined time; measurement means for measuring a temperature by using a sensor arranged in at least ~~either~~ one of the printing apparatus and the printhead in accordance with a comparison result by the comparison means; and update means for updating a temperature on the basis of the measured temperature.

The invention is particularly advantageous since the time counting operation can still continue even if supply from the main power supply of the printing apparatus stops, and the temperature can be more accurately detected without any influence of stopping supply from the main power supply.

The paragraph starting at page 12, line 10 and ending at line 12 has been amended as follows.

Fig. 13 is a flow chart showing a printing operation according to the first embodiment of the present invention;

The paragraph starting at page 28, line 18 and ending at line 19 has been amended as follows.

Fig. 13 is a flow chart showing the printing operation according to the first embodiment.